THE
BOSTON MEDICAL AND SURGICAL JOURNAL.

New Series.] Thursday, September 15, 1870. [Vol. VI.—No. 11.

Original Communications.

APHASIA, AND THE PHYSIOLOGY OF SPEECH.

(Continued from page 152.)

Part II.

A general survey of the anatomy and physiology, not only of the brain, but of the spinal cord, is necessary before the nature of speech can be rightly understood. As this paper is only a record of a brief course of reading, a general knowledge of the subject must be assumed, and only a review of the most important facts attempted. Many of these facts have been taken at second hand from the convenient summaries of Griesinger (Mental Diseases, New Syd. Society, 1867), Jaccoud (Les Paraplegies et l'Ataxie du Movement), and Marshall (Outlines of Physiology, 1869).

Anatomical View.—The *spinal cord*, instead of being simply a conductor of nervous impressions, is an important centre of nervous action. A single bundle of fibres only ascends directly from the posterior roots of the spinal nerves to the encephalon. All other fibres, both anterior and posterior, spring from or enter the cells of the cord. It is now admitted that all nerve cells are multipolar, having prolongations which are either continuous with nerve fibres or with those of other cells. In the cord the cells are large and are grouped into four primary divisions on each side. Van der Kolk has traced these groups throughout the whole length of the cord, and has designated them as follows, viz. :—the column of the anterior cornu, the lateral column, the column of the gray commissure, and the column of the posterior cornu. Twelve subordinate divisions may be distinguished on each side.

The distribution of the fibres of the spinal nerves, according to Wagner and Van der Kolk, is as follows. The anterior fibres all end in the cells of the anterior cornu of the same side. These cells have transverse prolongations which unite them to the corresponding groups on the other side. They have also encephalic fibres which form the anterior and lateral columns, and do not decussate in their upward course in the cord. The posterior fibres are of two kinds—cerebral and reflex. Of the former, a part ascend directly to the brain and a part enter the cells of the posterior cornu. These cells are prolonged into fibres which ascend in part on the same, and in part on the opposite side of the cord. The reflex fibres pass forwards through the grey substance, either terminating in the groups of cells or going out by the anterior roots. The cells of the posterior cornu are united by transverse prolongations, forming a posterior gray commissure.

The functions of the cord, based on these facts and the researches of Charles Bell, Magendie, Claude Bernard, Schiff, Brown-Séquard and others, are briefly as follows. The anterior columns, white and grey, conduct voluntary motor impressions. The grey columns bear the chief part in this transmission, their action being quite perfect without the white columns, while the latter, when isolated, have but a limited action. There are no responsive motions to direct excitation of the white or grey anterior columns, the anterior roots alone exhibiting this phenomenon. The posterior columns, grey and white, conduct sensory impressions to the brain, having both a direct and a crossed action. The grey columns transmit painful sensations and the white tactile sensations, the latter function being also shared by the grey substance. The posterior columns have a powerful indirect influence upon motion, since they regulate muscular coördination through the information they transmit respecting the position of the parts to be moved. The lateral column, which only becomes distinct and separate in the upper part of the dorsal region, has a special control over the respiratory function. The sensitiveness of the posterior columns depends on the direct fibres of the posterior roots.

The spinal cord must be regarded as a centre capable of independent action, possessing the power, through the arrangement of its cells and fibres, of producing motion in response to excitation, and of associating the actions of different muscles for some common end. These functions are subject to voluntary control only in a general way. In the case of reflex action, we may suppose, for the sake of illustration, that each group of cells has its sensory, voluntary and motor fibres, the action of the voluntary fibres usually predominating. When their action is annulled by section, disease, anæsthesia, or by exhaustion, as after resisting for a time continued tickling, the sensory impression eventuates in motion after its own method.

Respecting the coördination of movements, we must suppose organized groups of cells, corresponding in their connections to the combined muscular acts to be executed. These groups are called into action by a much smaller number of voluntary fibres than are requisite to operate upon the muscles themselves, as is partly demonstrated by the small size of the cord, when compared with the aggregate bulk of the spinal nerves. We are also conscious of our inability to call the muscles into isolated action by an effort of will, the mind only containing an idea of the combined result to be effected. That the action of the cord in this respect is independent, is shown by the frequency of automatic movements throughout the whole range of its possibilities. In such case it is probable the sensory information received through the posterior roots is sufficient to direct its operations in the absence of any but the most general and infrequent voluntary guidance.

The medulla is an expansion of the cord, with an elaboration of arrangement in its elements corresponding to the increasing complexity of its functions. The grey matter of the cord may be traced to the ganglia of the olivary and restiform bodies and to the corpus rhomboideum of the cerebellum. It passes forwards through the crura cerebri and joins the corpora quadrigemina, the optic thalamus and the corpora striata. At the substantia perforata it approaches the convolutions, but is separated from them by the interposition of the white fibrous tract.

The white substance of the cord may be traced by its posterior columns into the cerebellum and optic thalami, and by its anterior columns through the pons into the corpora striata. Part of the anterior pyramids and the deeper portions of the lateral columns decussate just below the medulla.

The complex rearrangement of the white and vesicular matter of the cord in the medulla has been almost exhaustively described by J. Lockhart Clarke (Researches on the intimate Structure of the Brain, 2d series, Phil. Trans., Part I., 1868). We may, however, suppose a general similarity of function in parts so nearly allied. The cranium is but a group of modified vertebræ, and the cranial nerves are analogous to the spinal; and since the former find their nuclei in the cell groups of the medulla, we may fairly expect to find here the same reflex and coördinating powers as in the cord below, but presiding over new regions of distribution. This view seems to be well supported by observation and experiment.

The basic ganglia, including the pons, cerebellum, corpora quadrigemina, corpora striata and optic thalami also seem to constitute centres of action analogous to those in the medulla and cord. It is believed by some quite recent authorities, though it is of course difficult of demonstration, that the fibres of the cord end in these ganglia and are not directly continuous with the radiating fibres of the cerebrum. Carpenter says:—"It is a point especially worthy of note that no sensory fibres terminate directly in the cerebrum, nor do any motor nerves issue from it. * * * And we shall find strong physiological as well as anatomical ground for belief that the cerebrum has no communication with the external world otherwise than by its connection with the sensori-motor apparatus." (Physiology, 7th ed., 1869, p. 515.)

The pons has a complex structure and seems to be an important centre of action. On irritation, epileptiform convulsions are produced. H. Nothangel thinks he has proved the centre of general convulsions to be located in the pons, and explains the spasms following injury to the floor of the fourth ventricle by reflex action. (Med. Record, Oct. 1, 1869.) The cerebellum has of late been regarded as a coördinating centre for general muscular movements. If so, it is probably also the seat of the necessary guiding sensations, whether derived from the nerves of muscular sense or otherwise. This view is corroborated, according to Carpenter, by the "marked structural connection which exists between the cerebellum and optic ganglia, by which the visual sense is called in to aid in the direction of certain movements." (Physiol., 7th ed., 1869, p. 624.) Van der Kolk, however, denies the possibility of this view, and believes all harmonized movement to be due to organized groups of cells in the cord.

The basic ganglia, taken together, have been supposed to constitute a sensori-motor system, receiving impressions from the cord, the nerves of special sense, and from that "organ of internal sense," as Reil has called the cerebrum, and reacting upon them. This reaction is both downwards upon or through the cell groups of the medulla, and upwards upon the convolutions. It would seem reasonable to assign to these ganglia both reflex and coördinating functions, modified to meet new necessities and by the special character of the stimulus received. There is reason to doubt, however, the complete interruption of fibres of which Carpenter speaks, in view of later opinions and researches which will be presently mentioned.

The Cerebral Hemispheres, exclusive of the basic ganglia, form a centre not directly essential to animal life, but devoted to a still higher class of functions. The experiments of Louget, Dalton and others, show that in pigeons, all the movements of animal life may continue after their removal, the intelligence which usually directs them alone being wanting. The minute anatomy of the hemispheres furnishes a few hints as to their functions.

According to Griesinger the following systems of fibres have thus far been distinguished. (1.) The corona radiata. This is not simply a prolongation of parts of the medulla, as is evident from its greatly preponderating size. Its fibres radiate to the summits of the convolutions, and are most marked posteriorly. (2.) The expansion of the corpus callosum. It seems to be formed by those fibres of the corona which cross in passing to the opposite hemispheres. These fibres proceed chiefly to the inner and superior convolutions. (3.) The fibres of the anterior commissure. A part of these suddenly terminate in the inferior gyri of the middle lobe, and a part enter the posterior lobe to be distributed to the whole extent of the superior part of the hemisphere. (4.) The expansion of the nerves of sense, particularly of the optic nerve. A fan-formed expansion can be distinguished passing from the optic tract to the summit of the posterior lobes, and other radiations to the anterior lobes. There appears also to exist, both in the cerebrum and cerebellum, an expansion of the auditory nerve, derived from the posterior columns. (5.) Special systems of fibres pass from one convolution to another, and line the internal aspect of the cortical substance. Arciform fibres connect different parts of the same hemisphere.

For the most recent researches upon cerebral anatomy the reader is referred to a paper on the "Structure of the Cerebral Hemispheres, by W. H. Broadbent, M.D." (Jour. Med. Science, April, 1870.) It gives the results of careful and minute dissections by the author, which have been reported in detail to the Royal Society. This writer thinks he has demonstrated that fibres from the crura cerebri *do* pass uninterruptedly to the convolutions. Of the general plan of construction of the hemispheres he says, "The central fibres, including under this term the fibres of both crus and central ganglia (corona radiata) spreading out, are distributed to the convolutions along certain main lines, or at certain points. They do not, as has usually been assumed, and as is expressly stated by Gratiolet, enter each convolution, and form an axial plain connecting the summit of the convolution with the crus. On the contrary, there are entensive tracts of convolutions which receive no central fibres at all." He further states that the fibres of the corpus callosum have their line of origin or termination in common with those of the central fibres. The tracts above mentioned are also connected with these main lines by fibres, and with each other by lines of fibres running for the most part longitudinally in the brain. The fibres connecting one gyrus with another even, do not pass transversely under the sulci, but run longitudinally in the convolutions.

The cortical substance everywhere presents a stratified structure consisting of layers alternately light and dark, varying in number from four to eight. The color depends on the greater or less amount of vesicular matter. The minute structure of these layers also varies in different localities. It is in general composed of white fibres, with very fine subdivisions of peculiar granules in connection with the termination of these fibres, of ganglionic cells, whose prolongations are continuous in part with fibres, and in part with granules, and of an homogeneous tissue in which these elements are suspended. Griesinger, after summing up the conclusions of recent German authorities, says, "The relatively little which we as yet know of the intimate structure of the grey substance permits us to suppose, not only very great differences in the phenomena of this extremely delicate apparatus, but also that these phenomena are essentially different in the various parts of the brain."

The nerve cells themselves vary in shape. This is best observed in the posterior lobes, where exists an apparatus delicate and complex beyond description. The cells oval, fusiform, angular, or pyriform, with their connecting fibres, are so disposed as to give evidence of the highest elaboration of function. Virchow compares these characteristic apparatuses to the layers of the retina. (Cell. Path., Lect. xii., p. 301.) Maudsley, in commenting on Lockhart Clarke's description of them, says: "the general result of research is the fact, that an infinite number of communications exist, in all directions, between an infinite multitude of cells of all varieties of shape. (Physiol. and Pathol. of Mind, p. 55.)

Van der Kolk states, as the result of his long and patient investigations, that wherever there are differences of function, differences of structure and relation exist: "Microscopical investigation has established this in the completest manner." (Die Pathol. und Therap. &c. 1863.) We may still look to find in the convolutions, modes of nervous action similar to those seen elsewhere. The phenomena of nervous stimulation and discharge, depending on molecular changes in the nerve cells and fibres, and requiring constant reintegration from the blood, must be universal throughout the nervous system. Special arrangements of cells and fibres, either congenital or organized by growth in accordance with individual education and experience, modify these phenomena in various ways. For an analysis of the modes of nervous action, considered as changes of isomeric condition, the reader is referred to Spencer's Principles of Psychology.

Diagrammatic View.—The nervous apparatus may be divided for purposes of description into four sections or spheres of action, which, although somewhat arbitrary and artificial, will prove convenient for temporary use. In his late work on the Mind, which is an elaborate attempt to remove psychology from a metaphysical to a physiological basis, Maudsley designates them as follows—viz.: Primary, or Ideational, Sensori-Motor, Reflex and Organic. Their inter-relations are complex and obscure, but they show an increasing elaboration of function from the lowest to the highest. Each section has its independent mode of action, but is subordinate to the one next above it.

The Organic Centres, for instance, have an independent action originating in the sympathetic ganglia. Of this action little need be said in this connection. Jaccoud considers the connection of the sympathetic ganglia with the cord to be the fundamental fact, and spinal action to be predominant. The operations of the organic centres are carried on to a great extent outside the spheres of consciousness and observation. Their functions, though comparatively simple, powerfully affect and are powerfully affected by the higher centres.

The Tertiary Centres are concerned in reflex action. Here originate those motor impulses, which respond directly to excitation. In man they are for the most part primarily under voluntary control, and are only secondarily automatic. The vague alternate movements of the infant's limbs, acquire precision only by long experience and continued practice. When once the plan of coördinate action is organized in cord or medulla, the process of education passes out of memory, and the acquired movements are unconsciously and involuntarily performed. Examples of secondary automatic action make up a large portion of our daily life. This independent action of the tertiary centres, is subject at any moment to the control of the centres next above. A residual impulse ascends to the sensorium, and acts as a guiding sensation.

The Secondary Centres are Sensori-motor, movement responding to sensation instead of impressions. Such movement differs from reflex action mainly in the character of the stimulus. The sensations derived from the sources previously mentioned are of great variety and complexity, and are subject to certain laws of association, and to organic growth and decay. For a classification and analysis of them the reader is referred to Bain's remarks on Movement, Sense, and Instinct. (Mental and Moral Science, Book I., chap. ii.)

Sensori-motor action may be involuntary, as seen in the effects of a strong light, a pungent odor or taste, a sudden sound, and in the phenomena of coughing, sneezing, and the like. It may also be unconsciously performed, the mind taking no note of the guiding sensation. Dancing, marching to music, singing, speech, as well as most of the locomotor and manipulatory acts, may be carried on independently of the will or consciousness. The phenomena of somnambulism, hypnotism, and insanity, furnish abundant proof of the extent to which automatic action may go, when the suprasensory centres are asleep, or pre-occupied; and each one is aware in his own experience of the prevalence of such action under less abnormal conditions.

The Primary or Ideational Centres are brought into relation with the outer world, on the receptive side, through the medium of the sensorium. These centres are referred by general consent to the cerebral convolutions. Here, as we have seen, are nerve cells and fibres, arranged with a view to the most delicate and complicated functions. Layers of cells, with anastomosing processes, form local organic groups connected by commissural fibres one with another, and composing an apparatus, bearing evidence of profound design. We cannot doubt that the laws of nervous action apply here as elsewhere. *Natura nihil agit frustra*. We have in fact an *ideatorium*, capable of education through sensory channels. Simple ideas here become established, grouped and associated, in great variety, according to individual experience and capacity, just as similar processes occur in relation to sensations and movements in the lower centres.

Ideo-motor action may be involuntary—a sudden thought exciting instant reaction. A blush, the start from sudden fright, or laughter from a sudden sense of the ludicrous, are examples. It may be unconscious, the train of ideas following certain laws of association, and producing certain results which the mind perceives, without having been aware of the process. The best results of ideation are of this spontaneous and automatic character. Self-consciousness often serves to retard or interrupt mental operations.

As there is no higher centre to which the residual impulse can ascend, from the ideatorium it seems to expend itself, not in immediate motor reaction, but in a transference from cell to cell along accustomed paths, subject to constant modification, and effecting changes in its course, until extinguished. By the changes it effects in the cell elements, on its way, it seems to be storing up the material of future reaction. Some such process may be supposed essential to deliberate thought. The higher its development, the less immediate and energetic its final reaction. A too nice balancing of reasons prevents decision, just as a too active consciousness interferes with the free flow of thought.

When we consider the mind on its reactive side we perceive that co-ordinate motion is effected by means of stimuli from any of the centres above described. There is no necessity for supposing distinct centres for each mode of stimulation when one centre of coördination may respond to each stimulus in turn. This is further shown by the fact that the will can only control, and the mind is only conscious of movement in the mass, having no immediate connection with the action of individual muscles. Ideation deals with movements as with sensations only in the abstract. There is then a region of actuation, a *motorium commune*, containing the organized residua of all past actions and ready to respond to adequate stimulus from any direction. Van der Kolk, and Jaccoud following him, find this region in the cord and medulla, and Spencer discovers a direct relation throughout the animal kingdom, between the amount and complexity of movement, and the size of the ganglionic masses.

Perhaps too much space has been given to preliminary considerations, but it seems important to have in the mind some ideas of the general plan of cerebro-spinal action, before attempting to refer so important a function as speech to its proper position. I can only advise a thorough perusal of the works to which reference has been made, to fill up the meagre outline given here.

The Nervous Mechanism of Speech.—Articulate speech requires a regulated respiration and phonation, with various lingual, labial and buccal changes, affecting the shape and size of the oral cavity. In vocalization a control of the respiratory function is assumed through the ordinary muscles of respiration. The pneumogastric, according to Cl. Bernard, is a mixed nerve. It has motor filaments of its own, which with the spinal nerves are concerned in the passive respiration. The spinal accessory, on the contrary, has for its special function, the adaptation of the respiratory movements to the necessities of animal life, such as the production of voice and general muscular effort.

The intimate anastomoses of these nerves from their origin, renders an authoritative discrimination of their functions difficult. Carpenter thinks the degree of inosculation varies in different races, and even in different individuals. Willis regards the external branch of the spinal accessory as made up from the cervical roots. Cl. Bernard coincides in this opinion, and believes it entirely independent of the internal branch, which he calls the special nerve of phonation. Hirschfeldt has always found an intimate inosculation between these branches, and believes Bernard to have described as normal what can only be a rare exception.

However composed, the external branch has to do chiefly with voluntary respiration, and the internal, which accompanies the pneumogastric, is concerned in the muscular movements of the pharynx and larynx. The spinal accessory, then, by its external branch, presides over those respiratory movements necessary to phonation, and by its internal over the tension of the vocal cords and the size of the glottis.

Articulation requires a modification of the sound produced in the larynx, the importance of which will be seen when one considers that the laryngeal voice is not essential to perfect articulation. Aspirated speech is adequate to the expression of ideas, and may be artificially produced by means of a current of air blown through the nostrils into the fauces, the glottis remaining closed (Carpenter's Physiology, p. 728). A gentleman of this city is now able to make long conversations, perfectly intelligible to those around him, by use of the muscular apparatus of articulation alone, the larynx being closed by disease, his breathing being entirely dependent upon a tube in the trachea.

Vowels are produced by certain changes in the oral cavity, the sound being uninterrupted, while consonants require various interferences with the vocal current. These changes are brought about by the combined action of the velum palati, cheeks, tongue, lips and teeth. The nerves on which these movements depend are distributed as follows: the spinal accessory to the pharynx, the hypo-glossal to the tongue, the facial to the cheeks and lips, and the motor branch of the trifacial to the levators of the lower jaw. The afferent nerves corresponding to these efferent, and analogous to the posterior roots of the spinal nerves, are, according to Carpenter, as follows: the motor branch of the fifth, to which should be added *all* the motor oculi nerves, constitutes with its sensory division the first pair of true intervertebral nerves. The facial and glosso-pharyngeal form the second pair, the spinal accessory and pneumogastric the third. The hypo-glossal may be regarded as the first of the spinal nerves.

The apparent origin of the nerves essential to perfect speech is in the medulla. The deep origin of their fibres is more difficult of demonstration. They may all be traced, by some fibres at least, to the floor of the fourth ventricle. Lockhart Clarke states that some fibres of the spinal accessory arise from the nuclei common to it and the pneumogastric, and others from the lateral grey matter and anterior cornu. The hypoglossal has a like double origin, the upper roots arising from a special nucleus and the lower from the upper part of the anterior cornu. The nuclei of the spinal accessory and hypo-glossal are in communication by fine nervous filaments. The facial nerve forms a horizontal loop in the medulla with the sixth. The sensory division of the fifth communicates with the pneumogastric and the glosso-pharyngeal in the gray tubercle, descending through the whole length of the medulla. (Phil. Trans., 1868, Part I.)

Van der Kolk, as well as Clarke, believes the olivary bodies to be coördinating centres for the cranial nerves and centres of reflex action also induced by sudden impressions on the nerves of special sense. He believes them to be concerned in the coördination of speech from their connection by transverse fibres with the nucleus of the hypo-glossal, and from the not infrequent occurrence of disease in them, accompanied by defective articulation.

[To be concluded.]

RESULTS OF THIRTEEN PASSAVANT'S OPERATIONS FOR BREAKING UP ATTACHMENTS OF THE IRIS TO THE CAPSULE OF THE LENS.

Read before the Suffolk District Medical Society, by B. Joy Jeffries, M.D., Boston.

Dr. Passavant published an account of his operation in the "Archiv für Ophthalmologie," 1869. This article I translated for the Boston Medical and Surgical Journal (Dec. 23, 1869), and would refer to it in explanation of the object, method and success of this operation as given by its originator.

Since March 1, 1870, I have performed Passavant's operation thirteen times all told, on four several eyes in three patients, as follows:—N. B., a woman æt. 22, has had severe specific iritis in the left eye, the sequelæ of which are, several strong posterior synechiæ, which atropine and the continued specific constitutional treatment have not broken up. (Fig. 1.) The pupil is also covered by a film of deposit, much reducing vision and obscuring an ophthalmoscopic examination. The Passavant operations were as follows:—

Fig. 1.

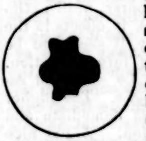

Fig. 1.—Pupil of left eye dilated by atropine, showing the attachments of the iris to the capsule of the lens. The film in the pupil is not shown.

March 16, '70, upwards and outwards.
March 22, '70, upwards and outwards on same synechia.
March 25, '70, downwards and inwards.
March 29, '70, downwards. Two were broken away.
April 2, '70, upwards and inwards.
April 7, '70, upwards.

April 15, '70, upwards and out, where the first two were done, as the iris seemed to be fastened down quite to its insertion, and the corneal opening was made far back, in order to be able to pull on the iris as near its periphery as possible. From this cut some blood flowed into the anterior chamber, obscuring a distinct view and thus preventing a second application of the forceps. In two days the blood was gone, and the pupil round under atropine. May 4, 1870, the patient was discharged from operative treatment, the pupil freely movable, but varying a little from a circle up and out, where three attempts had been made to entirely remove attachments. (Fig. 2.) This synechia was broken *twice*, so far as the iris could be pulled. Whether the iris does not here contract from exudation in its tissue, or is fastened down, I cannot decide. I judge, however, the latter, as the rest of it responds readily to light. The pupil now is much clearer and the fundus well seen with the ophthalmoscope. Vision, of course, correspondingly improved. No specific affection of the retina or choroid was noticed. The eye looks almost the same as the other, and is greatly improved in appearance. The three punctures of the cornea, so close together, have left a slight cicatrix, which will probably disappear, or if not, is of no consequence cosmetically. The spots of pigment now seen on the capsule show where the synechiæ were. There is no film over the pupil, and it is a question whether the breaking away of the synechiæ by removing the connection of the deposit on the capsule in the pupil from the iris, did not hasten or facilitate its absorption. My own feeling was, that such a number of synechiæ and amount of lymph in the pupil would have ruined the eye, as I should have looked to the pupillary membrane becoming further organized.

FIG. 2.

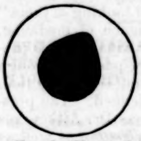

FIG. 2.—Shows the results of the operations. The pupil still drawn a little up and out.

M. N. C., a woman æt. 38, has had severe specific iritis in both eyes, and, as sequelæ, a single synechia downward in the left eye, whilst in the right there are several, some broader, others quite delicate, close together. (Figs. 3 and 4.) Continued atropine and constitutional treatment have failed to break these attachments, which do not show themselves in the right eye except under atropine. I did five Passavant's operations on the two eyes as follows:—March 25, 1870, on the left eye downwards, clearing the pupillary edge completely.

On the right eye, April 19, 1870, downwards, two were broken.

April 22, 1870, up and inwards.

April 26, 1870, down and outwards.

FIG. 3.

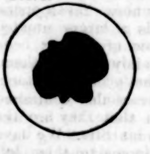

FIG. 3.—Right pupil dilated by atropine, showing the posterior synechiæ.

FIG. 4.

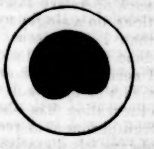

FIG. 4.—Left pupil dilated by atropine, showing posterior synechia.

Although I anticipated being obliged to perform at least four operations on this the right eye, these three sufficed to free the iris completely, two synechiæ being broken away together by opening the forceps wide enough to embrace them at once. May 4, 1870, the effect of the atropine has disappeared. Both pupils are perfectly round and movable, responding to light and shade. The patient continues under constitutional treatment for other signs of syphilis. All the synechiæ in this case gave way readily and no blood entered the anterior chamber, as I did not have to pull the iris except at its pupillary edge, and so did not require my corneal cut to be where bloodvessels would be touched by the lance-shaped knife.

E. B., a woman æt. 25, has had severe specific iritis in the left eye, which, having run its course, has left a posterior synechia downward that atropine and constitutional treatment do not break. (Fig. 5.) May 18, 1870, I broke this by Passavant's operation, and the pupil became round and movable. The patient continues under constitutional treatment for syphilis.

FIG. 5.

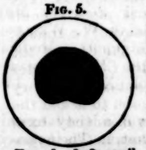

FIG. 5.—Left pupil dilated by atropine, showing the posterior synechia.

It will thus be noticed that the operations cleared the iris from the lens completely, leaving a round and movable pupil, except the single attachment in the first case.

Ether was given in all these operations, so I cannot say how painful it would be without.* Pain occurred subsequently in but one case, perhaps from the dragging of the iris or the presence of blood in the anterior chamber.

Outside of its very great necessity and importance to the ophthalmic surgeon, I think other physicians and surgeons will be interested to learn how the eye tolerates such operative interference. Seven operations on a single eye is a larger number than I at present know of having been done. My results certainly justified them. I need not dwell on the effect of attachments of the iris to the capsule; continued observation has shown that they are the fruitful source of recurrent iritis. We have always felt dissatisfied in seeing them left after iritis, now we have a safe and reliable means of breaking them away by grasping them with delicate forceps. I use a pair of moderately curved iris forceps, the teeth of which have been ground off and the points serrated. The more delicate their spring, the less liable are we to prick the iris too hard. Flowing off of the aqueous humor does not interfere, as the ends of the forceps are rounded, and can be pushed between the iris and cornea without danger. I have so far found this operation unexpectedly easy, and certainly most satisfactory in result. Iritis having just run its course, would naturally seem to contraindicate operative interference, but experience has so far shown differently. Other cases now under my care will, I trust, also prove this to be true.

Bibliographical Notices.

Modern Medicine; its Need and its Tendency. The Annual Discourse before the Massachusetts Medical Society, May 25th, 1870. By WILLIAM W. WELLINGTON, M.D., of Cambridgeport. Medical Communications of the Massachusetts Medical Society. Vol. XI. Art. IV. Pp. 133–172.

IT is apparent from even a hasty examination of this discourse that, in this instance at least, the Society's vote of thanks was no formal or matter-of-course compliment. As this vote expressed it, it is an "able, instructive, and highly interesting Discourse." It is well written and scholarly. It neatly developes and fully sustains its theme throughout. Touching upon, or referring to, the latest advances in science and medicine, it may indeed instruct the most laborious and best informed; it will force many a suggestive thought upon all, even upon those who run while they read; and whoever begins its perusal will pursue it with unabating interest to the end.

The Discourse opens with an allusion to the various subjects and departments of knowledge which the spirit of inquiry, so searching in these days, has unsparingly invaded — to their establishment or discomfiture; and follows "this disposition to look *into* things instead of looking *at* them" in its influence on the science of medicine. Of medicine the speaker says: "It is probably, at the present day, passing through an ordeal more severe and searching than it has ever before experienced. The present period in its history, as Dr. Aitken has truly said, 'is one of *probation* as well as of *progress*.' While, on the one hand, it is enriched, as at no former time, by the contributions of scientific inquiry and observation, on the other, its theory and practice are subjected to a remorseless criticism, which must needs expose their deficiencies, and reveal their short-comings. Especially the action of drugs, and their influence on disease, are undergoing a scrutiny, which must eventuate in essential modifications of existing modes of treatment."

"It must be confessed," he continues, "that the manner in which the medical profession is regarded by the community at large is not such as in all respects to gratify our self-love, or to flatter our vanity."—(Pp. 135–136.)

This confession he illustrates by suitable quotations from eminent and influential authors, who nevertheless not unlikely, as particularly in the case of Mr. Prescott, the historian, were among those most indebted to the profession. Such ungracious statements, which might easily be multiplied, should put physicians on their guard not to give occasion for their utterance.

We may be justly surprised and sometimes inclined to resent such treatment from those who should, and undoubtedly do know better; let us then listen to the calmness and wisdom of the Discourse:

"It is well, however, in matters of this kind, to be governed by reason and not by feeling. It should be remembered that although the community, at times, seems disposed to undervalue our services, the medical profession proper has ever held, and still holds, a high place in the public regard, and that, in the long run, it is recognized as the true exponent of existing medical science. (P. 138.) * * *

---

* Dr. Robert Amory, of Boston, reported to the "Society for the Promotion of Science in Medicine," the results of his experiments in reference to the use and purity of nitrous oxide gas. From his report I feel inclined to employ this as an anæsthetic in Passavant's operation whenever a favorable opportunity offers.

"But if, after a careful review of the facts in the case, the conclusion is forced upon us, that there is in the public mind a lurking doubt as to the efficacy of medical art, will it not be well to inquire whether after all there may not be some ground for such a doubt, and a real cause for the seeming want of confidence in our professional skill." (P. 139.)

Then after reviewing its various departments, and finding that "medicine as a whole can be shown to have kept pace with other branches of human inquiry," the conclusion is arrived at, that "the treatment of diseases, that part of it, especially, which relates to the administration of drugs, is not in a satisfactory condition, and is not creditable to the medical science of the nineteenth century." (P. 141.)

This is not owing, says the speaker, to omission in this direction, for "Physicians cannot justly be charged with having neglected to use medicines in sufficient quantity, or in a sufficient variety. The seventeen hundred closely printed pages of the United States Dispensatory, and the concurrent testimony of mankind, will triumphantly acquit them of any such charge." The blame must be ascribed in great part to the loose, sometimes careless or thoughtless, manner of administering drugs which has prevailed largely in times past, and is not obsolete even now.

"Is it an exaggeration to say that the want of clear and exact knowledge, which exists, even in our day, as to the effects of medicinal agents in the treatment of disease, is a great evil, which calls loudly for reform?"

Having further illustrated this point by showing the confusion in standard medical works, and the opposite methods in the treatment, of the mildest and the severest diseases, by the most eminent in the profession, the speaker announces the doctrine of the Discourse—that "the great NEED in medicine, at the present time, is clinical study;" and after defining and illustrating at length his ideas on this point, repeats, that "clinical research, then, particularly in relation to the effect of medication upon disease, is the chief NEED, and should be the special work of modern medicine"; stating emphatically that "*the efficacy of supposed remedies can only be tested by well-conducted investigations at the bed-side.*" This doctrine, none the less important because not absolutely new, is urged and enforced with much earnestness and original argument through many pages of the discourse. We would gladly reproduce the whole of it, but must content ourselves with rather liberal extracts:

"The fact is not fully realized, that clinical medicine is a distinct department of medical science, and not included in other departments; that it has its own special work, and its own way of doing this work."

* * * * * *

"The difficulties which attend the study of the treatment of disease are obvious. 1. The subject of our investigations is a living human being, placing himself under medical care to receive aid from the experience and acquisitions of the past, and not to be experimented on for the benefit of science or of posterity. 2. The doubt is ever present, whether improvement or recovery in any given case is in consequence of treatment, or inspite of it, or wholly unconnected with it. 3. Observations must be carefully made by competent persons, else they are of little value; and it is not every medical man, whose mental habits and previous training have qualified him for such work. False facts abound, and they furnish poor material from which to draw general conclusions. 4. Hasty generalizations, even if founded upon trustworthy observations, are worthless, and have been the bane of medicine at all times. They have an air of truth about them which renders them all the more dangerous. They are the offspring of untrained and illogical minds, and cannot stand the test of time and experience."

"In view of such difficulties, and the list is not exhausted, the path to success in the scientific treatment of disease seems so beset with obstacles as to disincline us from any harsh criticisms of the past, and to moderate our anticipations of the future.

"Let us in this matter do full justice to our predecessors. In all ages of our profession, the study of therapeutics has engaged the attention of wise and sagacious men. Any disparaging allusions to these men would be, to say the least, in very bad taste. If the results of their labors are not all that might be desired, or might have been expected, still they demand recognition, and should not be undervalued. Were all the knowledge we now possess in regard to the nature and uses of remedial agents obliterated, mankind would suffer a serious, an almost irreparable loss." * * * *

"Over-medication has been the besetting sin of the medical profession; and while clinical researches are going on to ascertain the influence of drugs, let it ever be borne in mind that nature is a kind mother, and that her healing powers are great; that she may be able to perform greater things than she has as yet been supposed capable of doing; that interference with her operations is a delicate matter, which should not be rashly undertaken. If it be a fact that there are diseases, now supposed to require various and powerful medicines, which will do equally well with less medicine than is commonly used, or with none at all, *medical science will be as truly advanced by observations and experiments tending to prove this fact* [the italics are ours], as by those which establish the efficacy of a new drug, or the beneficial effects of a new mode of treatment."

"Clinical study would be facilitated were we thoroughly acquainted with what may be called the physiology of disease. Much has been accomplished in this direction during the last twenty-five years, but more remains to be done. How can we decide with confidence upon the result of treatment, if we do not know the natural course of disease, uninfluenced by treatment? And without such knowledge are we not in constant danger of running counter to curative processes which nature may have initiated?"

"Disease, then, being a series of 'perverted life-processes:'—not a thing added to the animal economy to be driven out, nor anything subtracted from it, leaving a void to be filled—these processes being as yet, after all our boasts, but imperfectly understood:—is to be managed carefully, with all possible knowledge and study, through its several stages. The sick man is to be *taken care of* so as best to endure the changes he is undergoing; and the object in any serious illness being usually not so much to drive disease out of the body as to keep life in it, whatever else be done, or be not done, let his strength be supported by proper nourishment, supplemented, if need be, by tonics and stimulants, so that he may be kept alive till the disease has run its course, and the natural forces have restored healthy, in place of diseased processes. Thus much, at least, reason indicates, and experience sanctions. * * *

"Diseases, which can be 'cut short' or 'broken up' by medicine, are few in number, and may be counted on the fingers. [He might have said thumbs, and possibly then had one to spare.] They are the exceptions to the rule. * * * * *

"The doctrine enunciated in this place, five years ago, that 'disease is a part of the plan of creation,' though at times assailed, has never been invalidated, and, better than any other statement, comprehends and explains the facts appertaining to human ailments. The primal causes of disease are manifold, hidden, and mysterious. As they existed in the beginning, so do they now exist, and probably will continue to exist. They lurk, unknown and undetected, in the food we eat, in the water we drink, in the air we breathe, in the earth on which we tread, it may be in planetary influences all about us. The 'dust in the sunbeam,' shown by Prof. Tyndall to consist of organic matter, and existing in the air of the city, the country, and the isles of the ocean, has been breathed by human lungs ever since man was created, and will continue to be thus breathed, despite all efforts of science, until man ceases to live upon the earth. It will be hardly possible to pass the whole atmosphere over the flame of a spirit lamp, or through a red-hot platinum tube; neither is it probable that all mankind will ever use respirators charged with cotton, however useful such contrivances may be under certain circumstances. While impurities of various kinds exist in the air, which we are constantly breathing; while one of its essential elements, oxygen, seems to be allotropic, and to be convertible into ozone, and possibly other gaseous substances; while these admixtures and changes are universal, and apparently inevitable; while the earth and the waters are full of matters possibly detrimental to health, we need not surely be surprised that diseases come, and we may well despair of being able to annihilate them. We can hardly resist the conclusion that they were included in the original plan of creation, and are designed to fulfil some purpose of the Creator." * * * * * *

"The purpose of the foregoing remarks has been to show *that the great need in medicine at the present time is Clinical Research*, more particularly in relation to the treatment of disease; that therapeutics are behind the other departments of medical science, and deserve increased attention from those who are competent to conduct scientific investigations; and the suggestion has been ventured, that the results of such investigations will be to simplify medical treatment, to incline physicians to trust more to nature and less to drugs, and to lead them in their remedial measures to consult the comfort, and to sustain the strength of the sick man, rather than to use violent measures to oust his disease.* Believing in the existence of this need, and in the truth of this suggestion, it is gratifying to perceive that the TENDENCY of medical thought and practice is in the direction thus indicated. The contrast between the treatment of the sick, as laid down in the medical books of to-day, and as approved by our leading physicians, with that of half a century ago, is sufficiently marked to attract notice. Active medication is less common than formerly; the rules of procedure are more simple, exact and philosophical; the heavy artillery of the Pharmacopœia is not in such constant action; restorative agents are gaining precedence over those of an opposite character." (Pp. 149—161.)

But we find ourselves quoting quite largely, and must, for want of space, omit many passages we had marked. The Discourse goes on to contrast the methods of the present day in the *taking care of* the sick with those of former times, bringing forward many apt illustrations which we would willingly copy. We must content ourselves, however, with recommending to each of our readers to give the whole of this valuable Discourse an attentive and thoughtful study; and we conclude our inadequate notice with a quotation full of suggestive encouragement to those timid practitioners who tremble for their calling in the progress of therapeutical science and the tendencies of the age.

"The tendency of modern practice is also seen in the increased attention now given to the subject of dietetics." * *

"Much has been accomplished of late years in this direction; more remains to be done. If any physician fear that, by the minimizing of drug-treatment, his occupation will be gone, let him diligently contemplate this field of labor; he will find it broad enough to afford full scope for his best energies." (P. 166.)

But, with firmer faith in the utility of all true knowledge, however temporarily disturbing to preconceived opinions, or to personal conceit, let us, as says the Discourse:

"In view of statistical records, tending to show the favorable results in times past, of medical counsel and practice; in view of the great advance that has been made during the last half century in medical science; in view of the fact, that never before has so devoted a band of earnest and competent men been engaged in investigations appertaining to every department of medicine, as at the present day, with means and instrumentalities to aid them in their work such as their predecessors never dreamed of; in view of a bright future thus dawning on our profession: let us reverently 'thank God and take courage.'" (P. 169.) H-P.

Medical and Surgical Journal.

BOSTON: THURSDAY, SEPTEMBER 15, 1870.

SURGICAL MEMOIRS OF THE WAR OF THE REBELLION.

WE find on our Editorial table a volume which bears marks of great professional value, a contribution to the professional literature of the late war. It contains the following divisions:—

I. On the Wounds of Bloodvessels, Traumatic Hæmorrhage, Traumatic Aneurism, and Traumatic Gangrene.

II. On the Secondary Traumatic Lesions of Bone: namely, Osteo-myelitis, Periostitis, Ostitis, Osteo-porosis, Caries and Necrosis.

III. On Pyæmia.

The work is written by Dr. John A. Lidell, Brevet Lieut.-Colonel U. S. Vols., late Surgeon in charge of the Stanton U. S. A. General Hospital, &c. &c., and is edited by Dr. Frank Hastings Hamilton.

The several papers constituting this volume belong to a series of surgical essays and observations accumulated from the late war, and were placed in the author's hands by the United States Sanitary Commission for publication. The subjects treated, although anatomically and physiologically separate, have intimate pathological relations, and in this way are not inappropriately arranged in the same volume. Embracing, as these papers do, all the more recent ideas upon the topics discussed, with a vast amount of careful original research, they constitute complete and exhaustive treatises which cannot fail of acceptance by the profession. The size of the book forbids our giving more than a brief outline of its subject matter.

---

* In connection with these and other suggestions of Dr. Wellington, we are reminded of a valuable series of papers which have appeared, since the address was delivered, in the *Medical Times and Gazette* on The Progress of Therapeutical Science, almost identical in their general tone with that of Dr. W. Also an article on Errors in Diagnosis in the same Journal.—ED.

Dr. Lidell devotes his first chapter to *a general consideration of Traumatic Hæmorrhage,* with the phenomena which pertain to it, and naturally divides it into two distinct classes—the local and the constitutional. The subject of traumatic hæmorrhage, as it was observed among our wounded during the War of the Rebellion, is most conveniently considered under the heads primary, intermediary, secondary and parenchymatous. He applies the term intermediary to those cases occurring subsequent to twenty-four hours after the injury and prior to the advent of suppuration; and parenchymatous to that form of bleeding in which the issue of blood takes place, not from any one vessel that can be named, but from the whole of the wounded or ulcerated surface. It therefore appears to be essentially capillary in character and to depend for its production upon causes widely different from those which occasion either of the other varieties of hæmorrhage. Gun-shot wounds of any part of the body do not, in general, bleed nearly so much as incised wounds of the same part, the former being essentially contused or lacerated in their nature, and so, analogous to the injuries by which limbs are torn off by machinery or crushed by railway engines. The hæmorrhage from this source is therefore seldom troublesome to the surgeon. The author, in a very large series of gun-shot injuries, has seen but very few in which the bleeding continued in a threatening manner at the time of the examination. At one time, on examination of 300 wounded men, all of whom were injured by infantry firing, he made note of the fact that although a large proportion of them required the performance of capital operations, none of them had suffered much from hæmorrhage. At another time, in 800 wounded, he found the same result. This statement, of course, excludes those cases in which death has occurred at once on the field from the wounding of the main arteries of the body. He shows in connection with this fact how much injury may be done by the injudicious use of the tourniquet, and how unwise the practice was which placed this instrument so freely in the hands of the soldiers and other ignorant persons. The large arteries of the extremities are to a considerable extent protected against being wounded by rifle-balls by the strength of the fibrous sheath which invests them, by the toughness and extensibility of their coats proper and by the readiness with which they slip aside before the missile. The experience of every one who was in the service must bring to his mind numerous cases in which various parts of the body, and especially the neck, were riddled, without severing the arteries situated there.

Maisonneuve has shown that an artery may be pierced by a delicate instrument, such as a fine needle, without the production of hæmorrhage, or any other unfavorable result. The punctured wounds of war, however, give rise often to traumatic and arterio-venous aneurisms, ulceration and secondary hæmorrhage, and other like disastrous consequences. Contused wounds of arteries occur more frequently in military than in civil practice, and either produce inflammation and plugging of the artery or subsequently secondary hæmorrhage. The most striking examples of lacerated wounds of arteries are afforded by those cases in which limbs are torn off by machinery or carried away by cannon-balls, in which case the hæmorrhage is almost always spontaneously arrested; many cases were, however, witnessed in our late war in which this fortunate result was not experienced. Gun-shot injuries of arteries, notwithstanding their frequent escape, do however occur, especially in those cases where the velocity of the projectile is very great; when the velocity is retarded, contusion only is produced. Dr. Lidell takes occasion, in connection with the wounds of arteries, to notice the erroneous use of styptics for the arrest of hæmorrhage when arteries are wounded. Not the least interesting characteristic of the work under review is the combination of clinical and didactic teaching which it presents—for the author has happily combined, under the various heads treated, a valuable series of cases, and has followed each by comments which show careful thought and discrimination; criticizing where such a course is called for, and drawing practical lessons from failures as well as successes. In this way he deprecates the use of hæmostatics in hæmorrhage, where any arterial force behind keeps up the flow of blood. In this case the styptic is absolutely inefficient to produce the desired result; it changes the character of the wound so as to necessitate a slough from its surface before a cure can take place, and it acts itself as a deleterious foreign body.

Traumatic Aneurism.—This formidable affection of the arterial system is treated by our author in a very careful manner and with the usual divisions of surgical authors, the diffused and circumscribed. The operation of Antyllus, now frequently known as the "old operation," is that to which Dr. Lidell most frequently refers—consisting, that is, in tying the artery above and below the aneurismal tumor and then evacuating the contents. After the lapse of many centuries, this old operation continues to be preferable to all others in the treatment of most forms of traumatic aneurism. In a *résumé* of the methods of treatment, Dr. L. advises that traumatic aneurism of the popliteal artery, when produced by a gun-shot wound of recent origin, should be treated by amputation. In this case the old operation should not be performed, in consequence of the liability to gangrene following it. With the femoral, iliac, carotid, axillary, brachial, radial and ulnar arteries, the old plan may be adopted.

Gun-shot Wounds of the Veins, of such a character as to prove troublesome, occurred very rarely in the War of the Rebellion. Circular No. 6 informs us that "no cases have been reported in which the bleeding could not be controlled by pressure,"* and the Army Medical Museum contains very few specimens of injury to those vessels.

An interesting chapter on *Wounds of the Heart* gives us a series of cases of value. That gun-shot wounds of the heart are not always instantly fatal has been abundantly proved by the experience of foreign as well as American surgeons, and especially during the late war. Four cases of gun-shot wound of the heart are given in Circular No. 6, which came under treatment. Of course, as a general rule, the patient dies immediately, and the prolongation of life, under such circumstances, is a matter of infrequent occurrence. A case in the practice of Dr. Carnochan is related, in which the patient lived for eleven days and then died of pericarditis—in which the ball was found after death in the septum ventriculorum. Dr. Purple, of New York, has furnished, in a collection of thirty cases, a *résumé* of twelve in which the patients survived the injury for a considerable length of time, the periods ranging from forty-six hours to six years. An interesting case is given by Dr. Lidell in which a man received a wound of the heart from a stab, communicating with the right ventricle, in which the patient lived for seventeen days and then died of pneumonia. On making an autopsy, the heart was found to be nearly healed.

A chapter on *the Spontaneous Arrest of Hæmorrhage* from wounded arteries and the means by which it is effected, must receive more full attention from us at some future time.

The subject of *Intermediary Hæmorrhage* has but seldom found a place in the systematic treatises of surgery. MacLeod uses this term for those cases of hæmorrhage occurring after twenty-four hours and up to the tenth day, "being usually due," as he remarks, "to sloughing." Lidell, however, more justly, as it seems to us, limits this term to the intermediary period, *i. e.* after twenty-four hours and up to the period of established suppuration—the period, in fact, in which hæmorrhage takes place not from sloughing, but either from returning or from excited arterial action and the increased force with which the blood is driven through the arteries. Prof. Hamilton entertains the same views on this point. As the intermediary period is brief in duration, so the number of cases of intermediary hæmorrhage which come to the surgeon's notice is small when compared with the number of cases of secondary hæmorrhage which he is called to treat. Prof. Hamilton, in his treatise on military surgery, offers some very judicious observations on this subject.

---

* Circular No. 6, Surgeon-General's Office, p. 39.

Secondary Hæmorrhage.—Under this term the author includes all bleedings from wounded arteries which occur subsequently to the establishment of suppuration, that is after the fifth or sixth day, and all losses of blood occasioned by the spontaneous rupture or opening of the sac in cases of traumatic aneurism. According to the statement of surgical writers, this is most apt to occur between the fifth and twentieth days, and especially about the fourteenth day. This does not, however, exactly accord with the observation of Dr. Lidell, who, in a series of 65 cases, gives an average somewhat higher. He treats, in detail, the causes of secondary hæmorrhage, giving cases illustrative of each.

In the chapter devoted to the *Surgical Treatment of Hæmorrhage*, an interesting case is given in which cerebral symptoms were developed within a few minutes after the common carotid was tied. The author gives the result of eleven cases in which this operation was done. Seven resulted fatally, three recovered and in one the result was unknown. In conclusion and after discussion of the various methods, ancient and modern, employed for controlling hæmorrhage, he considers the ligature to be decidedly the most reliable. This he would apply as early as possible, and to both orifices of the bleeding vessel.

Parenchymatous Hæmorrhage has not received distinct and special notice from surgeons until a recent period. No account is given of it by Hennen, Guthrie or the older writers on military surgery. Stromeyer considers it caused by the entrance of pus into the veins and of stoppage of the larger veins by coagulation; nevertheless he does not assert that it is not met with in the surface of wounds unaccompanied by pus in the veins. In fact it seems to have its source, according to Lidell, in the capillary vessels, and is in reality a capillary hæmorrhage. During the primary period in the history of wounds, it has been encountered in connection with amputations in limbs which have been previously inflamed, and in which the inflammatory process has not wholly subsided. It is also occasionally met with in the intermediary period; in the secondary period it is generally associated with pyæmia, and is in fact the condition of things described by Stromeyer; or in which thrombosis takes place in the veins of the affected part and the blood is forced out through the capillaries. In this method of hæmorrhage styptics become necessary. Dr. Lidell also suggests the use of water at 160° Fahr., so hot as to cause the coagulation of albumen. Actual cautery should be used as a last resort.

The disorders which are included in the second section of the work involve some one or more of the three constituents of bone—that is, either the periosteum, the bone tissue itself or the marrow; or, in certain cases, all of them combined. Indeed, the relation which exists between these several structures, both from contiguity and sympathy, is so intimate that a morbid process which attacks one of them is exceedingly liable to involve the others also, at least to some extent.

The *Secondary Traumatic Lesions of Bone* are mostly inflammatory and are discussed under the several heads given at the commencement of the article. The author has arrived at the conclusion that, of all the inflammatory disorders of bone of a traumatic origin, the inflammation of the medullary tissue is the one which possesses most importance, which occurs most frequently, which dominates over the others, and which is most liable to prove fatal. The disease was often met with in our hospitals in the late war—it was indeed, without doubt, one of the most frequent in occurrence and important in character of all those surgical affections which followed from shot injuries of the osseous tissues or from surgical operations involving bone. "Among the most striking and important anatomical facts relating to the healthy marrow are its softness, its vascularity and its richness in medullary cells. Its softness exposes it to injury, both in the nature of concussion and contusion, from violence applied to the bone which contains it; and if its vascularity and richness in cells render it liable to become inflamed, when injured, they also afford the means of readily repairing the consequences of most of the traumatic lesions to which it is exposed. Its vascularity and richness in cell formations also cause the inflammatory process to run a very rapid and destructive course in it (with suppurations), especially destructive in unhealthy subjects or under unfavorable circumstances as to hygiene and treatment." (P. 278.)

With this anatomical disposition of the marrow, we find osteo-myelitis a frequent accompaniment of all injuries of the bone. A very large majority of its victims have been young people—that is, persons who have not reached the middle period of life. Of thirty-seven cases occurring in civil life, which Dr. Lidell had collected, but five had reached forty years of age. One reason why inflammation of the medullary tissue is more apt to occur in youth than at the later periods of life, is in all probability the fact that the bones are still growing, and the marrow, especially in the long bones, is more vascular and more irritable. It is also influenced by sex, occupation, the scorbutic diathesis, impurity of the air, traumatic and other causes. We feel ourselves obliged to pass hastily over the author's description of the disease, its diagnosis and treatment. We cannot, however, fail to notice the carefully drawn descriptions of the cases and the wise comments he makes on them. It is in connection with this part of the work that the author gives a series of ten chromoliths, drawn and executed in this country, which we think we have never seen excelled for accuracy of delineation, and for the truth and beauty of the coloring.

Throughout the work the bibliography of the subject is excellent and the references are well selected and show great research. The corroborative facts are largely drawn from the works of the present day, and include such names as Virchow, Barwell, Ollier, Stanley, Klose, &c., names which in themselves give confidence in the facts stated and in the conclusions deduced from them.

The length of our article compels us to omit mentioning the articles on the remaining diseases of the bones, as well as the section on pyæmia, all of which are carefully written and are in themselves very valuable.

A CASE OF ANCHYLOSIS OF NEARLY EVERY JOINT OF THE BODY. By W. E. WHITEHEAD, M.D., Assistant Surgeon U.S.A.—On making the ascent of the Cumberland Mountains at Anderson's Pass, from the Sequatchie Valley, I made a halt on the top of the mountain at a small house by the road-side, to rest and get some refreshments. At this house were two women and two or three children; one of the women looked very ill, and was bolstered up in a large chair before the fire. Upon inquiry I was informed that she had been a martyr to rheumatism for years. I noticed cretaceous deposits about the joints of the fingers, and after further conversation, and on their discovering that I was a physician, the women became more communicative. The patient told me she could not move a joint in her body, with the exception of the fore-finger and thumb of the right hand, the right shoulder, under jaw, and could partially rotate her head—the motions of the joints named very limited. This statement was corroborated by the other woman, who was sister to the patient, as also from my own observation (partial) of the case. The sister was obliged to lift her from the bed to the large chair in which she sat or reclined, which operation she performed very easily, remarking that the patient did not weigh as much as one of her children, the eldest a girl of about seven years of age. The patient seemed to be a person of about thirty-six or thirty-eight years of age; her faculties were good—sight, hearing, and speech apparently perfect. She consumed large quantities of opium, and desired me to sell her some, but not having any to dispose of in that, or any other way, I promised her that should I pass that way again I would give her some. I had occasion to return in about ten days, with a wagon-train of wounded, and I called and gave her some powdered opium.—*Pacific Med. and Surgical Journal.*

IN an interesting paper read before the Leipzig Obstetrical Society, Dr. Korman urges subcutaneous injections of morphia in obstetric practice, under the following circumstances, viz.: 1. During painful dilatation and expulsory periods, especially in primiparæ and in narrow pelves. 2. In spasmodic pains. 3. In painful complications of the process of labor in general. 4. In severe after-pains.—*National Medical Journal.*

DEATH FROM A UTERINE INJECTION.—Dr. J. C. Nott, of New York (*New York Med. Journal*), informs us that Scanzoni published a case of death, in one hour and three quarters, from injecting carbonic acid into the cavity of the neck.—*New York Med. Rec.*

Medical Miscellany.

Anonymous Communications.—We are compelled once more to remind our patrons that we do not feel bound to pay any attention to communications which come to us without the names of the authors attached, or, at least, made known to the Editor. Such articles find a speedy and permanent resting-place in our capacious waste basket. The name of the writer *must* be entrusted to the Editor, as a guaranty of his good faith.

A New Medical Journal.—Messrs. J. B. Lippincott & Co. announce that on the 1st of October, 1870, they will commence the publication of a new semi-monthly medical journal, entitled *The Medical Times*, each number containing sixteen double-column quarto pages of reading matter, printed in handsome style. An able corps of editors and contributors has been secured. The subscription price is fixed at four dollars.

"**Liberality of the Albany Med. School—Fraternization of Allopathic and Homœopathic Physicians.**"—A correspondent of an Albany (N. Y.) paper, sends this item to its editor:—

"The Hon. Ira Harris delivered the opening address at the college yesterday morning. The address was able and interesting, and we were pleased to see many homœopathic physicians in attendance. Mr. Harris is a firm believer in and patron of homœopathy, and fills a chair in the college. It is indeed gratifying to know that the barriers which have hitherto divided the two schools of medicine are being removed, and to see our college taking the initiatory step towards such a desirable achievement. We believe this is the only allopathic medical institution in this country that possesses views sufficiently liberal to allow any of the chairs to be filled by men who firmly and practically believe in the homœopathic doctrine. It is also pleasant to know that several of the trustees of the college are firm believers in homœopathy."

What say our Albany friends? Is homœopathy to be recognized in their school?

The Tomato.—"A Constant Reader" asks us to give "in the next number of your Journal, the most recent and reliable analysis of the tomato," and adds to this request the query, "Is there any foundation in science for the condemnatory language which the tomato, as a universal esculent, has received from certain popular medicists of the day?"

As the time allotted us for the answer is too short for an elaborate article, we place the communication before our readers, with the hope that some analyst will kindly give the result of his investigations. We have looked in vain for the honorarium usually accompanying letters asking for information.

Mortality in the city of Paris, for the week ending Aug. 13th, 1,122—of which, 176 deaths were caused by variola; 87 by diarrhœa, 38 by typhoid fever, 32 by pneumonia, &c.

Medical Communications of the Massachusetts Medical Society.—We are requested to state that, through an error in preparing the copy of the Communications for 1870 (mailed to the members on the 6th inst.), the lists of the Councillors and Censors of the Middlesex South District Medical Society are incorrect, those of 1869 appearing instead of those of 1870. The following is a corrected list.

Councillors.—H. Cowles, Saxonville; Richard L. Hodgdon, Arlington; Samuel H. Hurd, Charlestown; Theodore Kittredge, Waltham; Thaddeus P. Robinson, Newton Centre; Lucius L. Scammell, Hopkinton; John L. Sullivan, Malden; Henry P. Walcott, Cambridge; Royal S. Warren, Waltham; A. Carter Webber, Cambridgeport; John W. Willis, Waltham.

Censors.—Zabdiel B. Adams, Framingham; Edward R. Cogswell, Cambridgeport; James C. Dorr, Medford; Otis E. Hunt, Waltham; Jonas F. Wakefield, South Malden.

To Correspondents.—Communications accepted:—Case of Urethral Calculus—Coup de Soleil, followed by Paralysis.

Pamphlets Received.—Annual Address delivered before the American Institute of Homœopathy, at its Twenty-seventh Anniversary, at Chicago, June 8, 1870, by Carroll Dunham, M.D., of New York. Pp. 23.—Fifth Annual Report of the Hospital for Diseases of the Skin, Regent Street, Belfast, Ireland. Pp. 20.

Died,—In New York, Gunning S. Bedford, M.D., long known in that city as a leading practitioner of medicine, and extensively known through the country as a popular Professor in the Medical Department of the University of New York, and also as the author of several valuable works on midwifery.

Deaths in seventeen Cities and Towns of Massachusetts for the week ending Sept. 10, 1870.

Cities and towns.	Total.	Prevalent Diseases. Cholera Infantum.	Consumption.
Boston	121	22	12
Charlestown	12	4	2
Worcester	31	5	5
Lowell	16	3	6
Milford	8	3	1
Chelsea	2	0	0
Cambridge	23	7	3
Salem	12	1	2
Lawrence	7	3	1
Springfield	9	0	3
Lynn	14	3	1
Gloucester	5	1	0
Taunton	11	2	4
Newburyport	4	0	1
Somerville	5	2	1
Fall River	17	4	2
Haverhill	5	0	3
	302	60	47

From all the above-named places there are reported eighteen deaths from dysentery and diarrhœa, and nine from typhoid fever.

George Derby, M.D.,
Secretary of State Board of Health.

Deaths in Boston for the week ending Saturday, Sept. 10th, 121. Males, 68; females, 53. Accident, 8—apoplexy, 2—disease of the bowels, 1—inflammation of the bowels, 1—congestion of the brain, 4—disease of the brain, 5—cancer, 3—cholera infantum, 22—cholera morbus, 1—consumption, 12—convulsions, 2—cyanosis, 1—debility, 1—diarrhœa, 4—dropsy of the brain, 1—dysentery, 4—scarlet fever, 3—typhoid fever, 2—gastritis, 1—disease of the heart, 2—icterus, 1—infantile disease, 4—insanity, 1—intemperance, 1—disease of the kidneys, 4—congestion of the lungs, 1—inflammation of the lungs, 3—marasmus, 6—necrosis of ribs, 1—old age, 2—paralysis, 3—peritonitis, 1—premature birth, 2—malignant pustule, 1—puerperal disease, 1—teething, 1—tumor, 1—unknown, 6—whooping cough, 1.

Under 5 years of age, 62—between 5 and 20 years, 5—between 20 and 40 years, 25—between 40 and 60 years, 14—above 60 years, 15. Born in the United States, 84—Ireland, 27—other places, 10.